

REMARKS

Claims 11-21 are pending in this application. Claims 11, 18 and 20 are amended. The amendments do not add new matter, and entry at this time is proper.

Favorable reconsideration and allowance of the present patent application are respectfully requested. The amendments, in conjunction with the following remarks, are believed to place the application in immediate condition for allowance. Accordingly, entry of the amendments and favorable consideration of the application are respectfully requested in view of the foregoing amendments and the following remarks.

Though claims 11, 18 and 20 are amended, Applicants do not concede that the Office Action's statutory rejections are proper. The amendments are understood to not narrow the scope of the claimed invention, nor have they been made for reasons related to patentability. Rather, the amendments are made to clarify embodiments of the claimed invention. Thus, in future construction or interpretation, the amended claims are entitled to a full range of equivalents.

Office Action

Claim 20 stands objected to because of certain informalities. Claims 11-13, 15 and 17-21 stand rejected under 35 U.S.C. § 103(a) as allegedly rendered obvious by U.S. Patent No. 6,054,832 (Kunzman et al.) in view of U.S. Patent No. 5,812,303 (Hewlett et al.). Claims 14 and 16 stand rejected under 35 U.S.C. § 103(a) as allegedly rendered obvious by Kunzman in view of Hewlett, and further in view of Applicants' Background (the Background). Applicants respectfully traverse the objection and the rejections in view of the foregoing amendments and the following remarks.

Objections

Claim 20 stands objected to for certain informalities. The objection is respectfully traversed. Applicants amend claim 20 in accordance with the Examiner's suggestion. Thus, the objection is rendered moot. Applicants respectfully request that the Examiner withdraw the objection to claim 20.

Claim 11-13, 15, and 17-21 Are Not Rendered Obvious

The Office Action maintains the rejections of claims 11-13, 15 and 17-21 made in the previous correspondence that the claims are allegedly rendered obvious by Kunzman in view of Hewlett. The rejection is respectfully traversed.

To establish obviousness, the Office Action must meet three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine references teachings.

Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. MPEP 2143. Applicants respectfully maintain that the Office Action fails to establish obviousness with respect to claims 11-21.

Applicants maintain that the Office Action fails to establish obviousness with respect to the independent claims, as presented in previous replies. Specifically, Applicants maintain that the Office Action fails to provide any evidence of a motivation to combine the applied art, assuming the applied art may be combined, which Applicants do not admit, to achieve the claimed invention. Further, Applicants maintain that the Office Action does not adequately respond to Applicants previous arguments that the applied art teaches away from each other. Applicants, however, amend the claims to further distinguish the claimed invention over the applied art solely to expedite prosecution.

As noted above, the applied art must teach or suggest all the claim limitations. Applicants maintain that neither Kunzman nor Hewlett, either alone or in combination, disclose or suggest all the claim limitations. Specifically, neither Kunzman nor Hewlett disclose or suggest an integrated value of a transmissivity in a visible range of said white-transmitting filter is smaller than integrated values of transmissivities in a visible range of said non-white transmitting filters, as recited in claim 11. Further, neither Kunzman nor Hewlett teach or suggest an integrated value of a transmissivity in a visible

range of said white-light transmitting filter is smaller than integrated values of transmissivities in a visible range of the other filters in said set of filters, as recited in claim 18.

Kunzman relates to an electronically programmable color wheel. Kunzman describes a display system 10 using red, green, blue, and white light. System 10 derives data for the white portion of a color wheel 18 from the red, green and blue data. Color wheel 18 is operated by motor 20 and calibrated by use of a sensor board 22. Sensor board 22 and motor 20 are given operating instructions and communicate with system timing and control electronics 24. Electronics 24 matches events of color wheel 18 to the operation of spatial light modulator 28. System bus 48 sends various control signals necessary to coordinate the data processing, formatting, and movement of the data in time with the appropriate spoke on color wheel 18.

In the system of Kunzman, the color wheel has two clear regions that cover respectively 40 degrees and 20 degrees of the color wheel. See Fig. 4. The angle of the clear regions are selected in this manner to allow for the overall whitening purity or brightness of the entire display image to be maintained. This is contrary to the present invention in which the integrated values in the transmissivity range corresponding to white light is smaller than the transmissivity in the visible range of other light-transmitting filters.

Hewlett relates to light amplitude modulation with neutral density filters. Hewlett describes a color wheel 30 with a neutral density filter region for each

primary color. Color wheel 30 is broken into different regions for each color. At least one segment 34 of color wheel 30 has a lower intensity region of that color, referred to as a neutral density filter. For example, a neutral density filter density of 0.5 indicates that the neutral density filter density is one half that of the main segment color on color wheel 30. Hewlett, however, does not teach or suggest an integrated value of a transmissivity in a visible range of said white-transmitting filter is smaller than integrated values of transmissivities in a visible range of said non-white transmitting filters, as recited in claim 11. Further, Hewlett does not teach or suggest an integrated value of a transmissivity in a visible range of said white-light transmitting filter is smaller than integrated values of transmissivities in a visible range of the other filters in said set of filters, as recited in claim 18.

In contrast, the claimed invention discloses at least one delay compensating portion to delay higher-order bits of the digital data. The claimed invention further discloses the non-white light-transmitting filters being used to display information corresponding to the higher-order bits of the digital data. Referring to Kunzman, electronics 24 does not disclose or suggest a delay compensating portion to delay higher-order bits of any control signals along system bus 48. The delay compensating portion of the claimed invention allows the higher-order bits of the digital data to be delayed to compensate for the generation of the control signal by the signal converter portion of the claimed invention. Further, as disclosed on page 14 of the specification, the integrated

value of the transmissivity in the visible range of the light-transmitting filter (color filter C_w) corresponding to the white light is smaller than the integrated values of the transmissivities in the visible range of the other light transmitting filters C_r , C_g and C_b . The applied art does not disclose or suggest these features of the claimed invention.

Applicants also maintain that the Office Action does not provide any evidence of a motivation to combine the applied art, either in the applied art themselves or in the knowledge generally available to one of ordinary skill in the art. The Office Action concedes that Kunzman discloses a color wheel 18 that includes a RGB segment and two clear segments 50 and 54, as shown in Figure 4. The Office Action also concedes that Hewlett describes a color wheel 30 that includes an RGB segment with one or more neutral density filters. The Office Action alleges that the combination of Kunzman and Hewlett to provide a color wheel with RGB segments along with one or more clear (neutral density segments) segments to display the lower order bits would be an obvious modification. Applicants disagree.

Applicants maintain that the combination of color wheel 18 of Kunzman with the color wheel 30 of Hewlett results in a color wheel having several regions of colors of different color intensities, along with regions of white. The resulting color wheel would provide an image with increased artifacts, as well as increased processing requirements within the display system. Thus, no

evidence of a motivation to combine the applied art is provided by the Office Action.

Further, Kunzman and Hewlett teach away from their combination to achieve Applicants' invention. Kunzman states that "the white of a system using a RGB only color wheel is not pure white, it has an imbalance that makes it have a slight cyan tint." Column 6, lines 63-65. Kunzman further states that "using a clear segment in a color wheel moves the system white point towards a pure white reproduction." Column 6, lines 65-67.

Hewlett describes an RGB only color wheel without a clear segment. Thus, incorporating the teachings of Hewlett with the color wheel of Kunzman would result in the color wheel not having clear segment. This clearly contradicts the teachings of Kunzman. Therefore, the neutral density filter of Hewlett teaches away from its combination with Kunzman. "It is improper to combine references where the references teach away from their combination. In re Grasselli, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). MPEP 2145. Thus, Applicants maintain that the Office Action fails to establish obviousness with respect to claims 11-13, 15 and 17-21.

Claims 14 and 16 Are Not Rendered Obvious

Applicants note that claims 14 and 16 depend directly from independent claim 11. As discussed above, claim 11 is not rendered obvious by the combination of Kunzman in view of Hewlett. Further, the Background does not disclose or suggest those features of claim 11 missing from Kunzman and

Hewlett. If an independent claim is not obvious, then any claim depending therefrom is not obvious. MPEP 2143.03. Therefore, claims 14 and 16 are not rendered obvious by the applied art. Applicants respectfully request that the Examiner withdraw the obviousness rejections of claims 14 and 16.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact William F. Nixon (Reg. No. 44,262) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By 
Michael R. Cammarata, #39,491

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MRC/WFN/CJB:kpc:cb

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000